Medtronic Engineering the extraordinary

Magnet Operation

CRM Technical Services Standard Letter

The guidance provided in this letter is for healthcare providers and Medtronic representatives and applies to the following Medtronic device models:

- All Medtronic Implantable Pulse Generator (IPG) and Cardiac Resynchronization Pacemakers (CRT-P), Models, both MR Conditional and non-MR Conditional, whose Instructions For Use (IFU) include recommendations for application of a magnet to induce magnet operation - asynchronous pacing for specific clinical applications.
- This **excludes all Micra™ transcatheter pacemakers**
- Magnet application may also be used to check for elective replacement indicators (ERI) in IPG and CRT-P devices.
- The IFU may also suggest use of a magnet to inhibit sensing of electromagnetic interference (EMI) for specific medical procedures.
- Consult the appropriate individual device/clinician manual for specific guidance under which magnet operation is recommended.

https://manuals.medtronic.com/manuals/main/region

- All Medtronic Implantable Cardioverter Defibrillators (ICD) and Cardiac Resynchronization Defibrillator (CRT-D) Models, both MR Conditional and non-MR Conditional, whose Instructions For Use (IFU) include recommendations for application of a magnet to inhibit detection of electromagnetic interference (EMI) for specific medical procedures.
- Magnet application on an ICD/CRT-D device will **not** initiate asynchronous pacing.
- Magnet application on an ICD/CRT-D device may be used to check device status alerts.
- Consult the appropriate individual device/clinician manual for specific guidance under which magnet operation is recommended.

https://manuals.medtronic.com/manuals/main/region

This Standard Letter addresses Magnet Operation: This document is useful to health care professionals who perform medical procedures on patients with Medtronic implanted cardiac device systems and who consult with the patients' cardiologists.

Description

- The Model 9466 Patient Magnet is a blue coated, ring-shaped magnet.

Technical specifications

Shape	Ring
Size	Approx. 75 mm (3") diameter x 16 mm (5/8") thick
Materials	Ferrous alloys coated with epoxy
Minimum field strength	90 gauss measured 40 mm (1.5") from magnet surface

Storage and handling

- The magnet could damage some electronic devices if kept too close.
- Keep the magnet at least 15 cm (six inches) from electronic devices and recordings: VCRs, televisions, and videotapes; bank and credit cards, cordless and cellular telephones, computers, diskettes, calculators, etc.
- Keep the magnet at least 5 cm (two inches) from watches and clocks.
- If soiled, the magnet can be wiped clean with a soft cloth or a sponge or washed with a non-abrasive cleanser. The magnet is not damaged by being submerged in water.

General IPG or CRT-P MAGNET OPERATION

When initiating the Magnet Mode, the pacemaker switches to an asynchronous mode and paces at the magnet rate.

Magnet Modes are as follows:

- DOO in modes with dual chamber pacing, VOO in the VDD mode, and VOO/AOO in single chamber modes.
- Magnet rate for normal operation is 85 bpm (705 ms) for all modes.
- Magnet rate is 65 bpm (923 ms) when Recommended Replacement Time (RRT/ERI) is set or a full electrical reset has occurred.

Note: For the purpose of determining Magnet Modes, the AAI<=>DDD and AAIR<=>DDDR modes are considered dual chamber modes.

Specifically For Azure/Percepta/Serena/Solara:

- When a magnet is placed near the device, the pacing mode changes from the programmed mode to DOO, VOO, or AOO. The pacing rate changes to 100 bpm for 5 beats and then changes to 85 bpm or 65 bpm, as previously described.
- Placing a magnet near the device suspends tachyarrhythmia detection.
- When the magnet is removed, the device returns to its programmed operation.

Note: Magnet operation does not occur if telemetry between the device and programmer is established or if the MRI SureScan mode is programmed On.
Note: When the Magnet test is stopped, the pacemaker resumes programmed operation within 2 seconds.
Note: The magnet rate of older Medtronic pacemakers may be different than 85 ppm or 65 ppm. Please refer to the Medtronic Pacemaker and ICD Encyclopedia available on https://www.medtronicacademy.com/ for the model's specified magnet and non-magnet response.

Directions For Use for IPG or CRT-P

Magnet use for initiating asynchronous pacing in an IPG or CRT-P device:

- Locate the patient's implanted device by gently feeling for the device under the skin (typically in the left or right pectoral area)
- Place the magnet directly over the device.

ICD or CRT-D Magnet Operation

- When a magnet is placed near the device, tachyarrhythmia detection is suspended and no tachyarrhythmia therapies are delivered.
- Alert tones sound if programmed.
- The device ignores the magnet in the programmer head when telemetry communication is established through the programmer head.
- Before implant and for the first 6 hours after implant, the device will not sound audible tones when a magnet is placed over the device.

9466 Tachy magnet

Warnings:

- The ICD suspends its tachyarrhythmia detection and therapy operations while the magnet is in place.
- Removing the magnet restores the ICD to its programmed operation.
- The magnet does not affect the ICD's bradycardia pacing operations.
- To ensure tachyarrhythmia therapy if necessary, the patient should not carry, store, or leave the magnet positioned over the ICD.
- The patient should be careful to avoid sources of electromagnetic interference (EMI) while applying the magnet.

Directions for use for ICD or CRT-D

How to suspend or resume detection with a magnet

- To suspend detection, place the magnet (such as the Model 9466 Tachy Patient Magnet) over the device.
- To resume detection, remove the magnet from over the device.

Note: The 2090 and Encore 29901 programming heads contain a magnet. When the 2090 programmer is using wireless telemetry, you can suspend detection by placing the programming head over the device.

PATIENT MANAGEMENT GUIDANCE

This document is useful to health care professionals who perform medical procedures on patients with Medtronic implanted cardiac device systems and who consult with the patients' cardiologists.

Labeling

Consult the appropriate individual device manual for specific guidance under which magnet operation is recommended. www.medtronic.com/manuals

***9466 Tachy Patient Magnet Technical Manual*.** Manual Document number: M940929A001 2005-01-28. Rev C, www.medtronic.com/manuals

Additional comments

For further information please contact the following:

Technical questions: Medtronic Technical Services can answer additional questions regarding these device operations.

Device labeling: For additional device-specific guidance**,** consult the labeling associated with the device available on the Medtronic Manual Library website at www.medtronic.com/manuals

How to contact U.S. CRM Technical Services: Email: tshelp@medtronic.com
Pacemakers: (800) 505-4636, ICDs: (800) 723-4636, Programmer Support: (800) 638-1991

This information is verified for devices approved in the U.S. and may differ by country. For product-specific information on device operation and indications for use, reference the appropriate product labeling